

Magazine

My word

How the rot spreads

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Here is a biology quiz. Please mark each statement as true (T), false (F) or absurd (A). An absurd statement is one that, in any biological context, has no meaning at all.

1. Ecologists refer to plants as 'producers' because plants provide humans with foods, medicines and other commercial goods.
2. A bird has no jawbones.
3. The term 'genetic engineering' means selective breeding.
4. The term 'organic compounds' denotes compounds that occur naturally in the bodies, products or remains of organisms.
5. A cell makes nucleic acids by combining carbohydrates with proteins.
6. An electron microscope cannot be used for observing living cells because the electron beams create a lethal vacuum.
7. Ice-minus bacteria protect strawberries from freezing by keeping the strawberries warm.
8. Wheat is an important source of edible oils, but maize is not.
9. The body of an amphibian is far more complex than the body of a fish.
10. Acupuncture restores the human body's balance of vital energy.

The right answers, of course, are F, F, F, F, F, F, F, F, A, A — unless you happen to be learning biology out of schoolbooks. In that case, all ten answers are T.

All ten statements in my quiz are 'facts' presented in textbooks that publishers are selling to US public schools right now, for use in teaching biology (a high-school subject) or life science (a sort of simplified biology, usually taught in middle schools). I have found hundreds of such false or

absurd claims in schoolbooks during my work with the Textbook League, an organization that provides educators with expert reviews of instructional materials.

Although survey after survey shows that Americans are abysmally ignorant of science, and politicians continually hatch inane schemes to confer 'science literacy' on all students, very little attention is given to a fundamental, crippling defect in our system of science education. Many students are forced to use outrageously incompetent textbooks created by people who know little or nothing of science — textbooks which claim that charcoal is a form of coal, that aspirin is a synthetic polymer, and that the regeneration of an organ is a type of reproduction!

It is bad enough to offer students fake facts, but much worse to mislead them about basic biological principles. Do you remember the 'natural theology' that William Paley popularized during the early 1800s? It is still alive in some 'science' textbooks; students learn, for example, that predators and prey are allies, helping each other to prosper and to preserve nature's mystical, beneficent order. Do you remember nature's ladder — the *scala naturae*? This is the old notion that organisms form a continuous series from 'low' to 'high', culminating in man (the highest, most admirable creature of all). Nature's ladder still serves as an organizing theme in most biology and life-science texts. Writers sustain it by using distortions, half-truths, falsehoods, and the selective omission of inconvenient facts.

Such cases show us that the writers of these schoolbooks are ignorant and incompetent. But US schoolbooks also contain some misinformation that has been deliberately added. For example, many schoolbooks nowadays are influenced by 'multiculturalism', a misnamed ideological system that has found favor with some educators.

One might guess, or even hope, that 'multiculturalism' would have to do with teaching and learning about various cultures. But alas, what the US education community calls 'multiculturalism' is a political ideology that includes anti-intellectualism, a hostility towards Western institutions, and an especially keen hostility towards science.

One effect of 'multiculturalism' on science textbooks is the inclusion of fake science and fake history. For example, schoolbook writers endorse Oriental medicine, saying that it works by balancing the body's 'vital energy' — a claim founded on the long-discredited theory of vitalism. They imply that Amerindian witchcraft is equivalent to scientific medicine on the grounds that witch doctors, like physicians, must undergo years of training. One biology textbook even leads students to believe that Amerindians were the sole inventors of irrigation (presumably the ancient peoples of the Middle East built their great irrigation systems after visiting the New World).

Why are our textbooks so bad? Like other commercial publishers, schoolbook publishers produce what they can sell. And they know that they can sell fatuous 'science' books, loaded with misinformation and ideological nonsense, because many US school districts are unable to assess what the books say; in other words, the districts have no knowledgeable evaluators who can determine whether the material in the books is true or false, valid or absurd, modern or moldy. This will not change until scientists take an interest in schoolbooks, help local schools and school districts to evaluate them, and help teachers to avoid spreading the anachronistic rubbish, fake 'facts' and imaginary 'history' that schoolbook publishers are disseminating with such vigor.

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